LIVING BIRD

For the Study and Conservation of Birds

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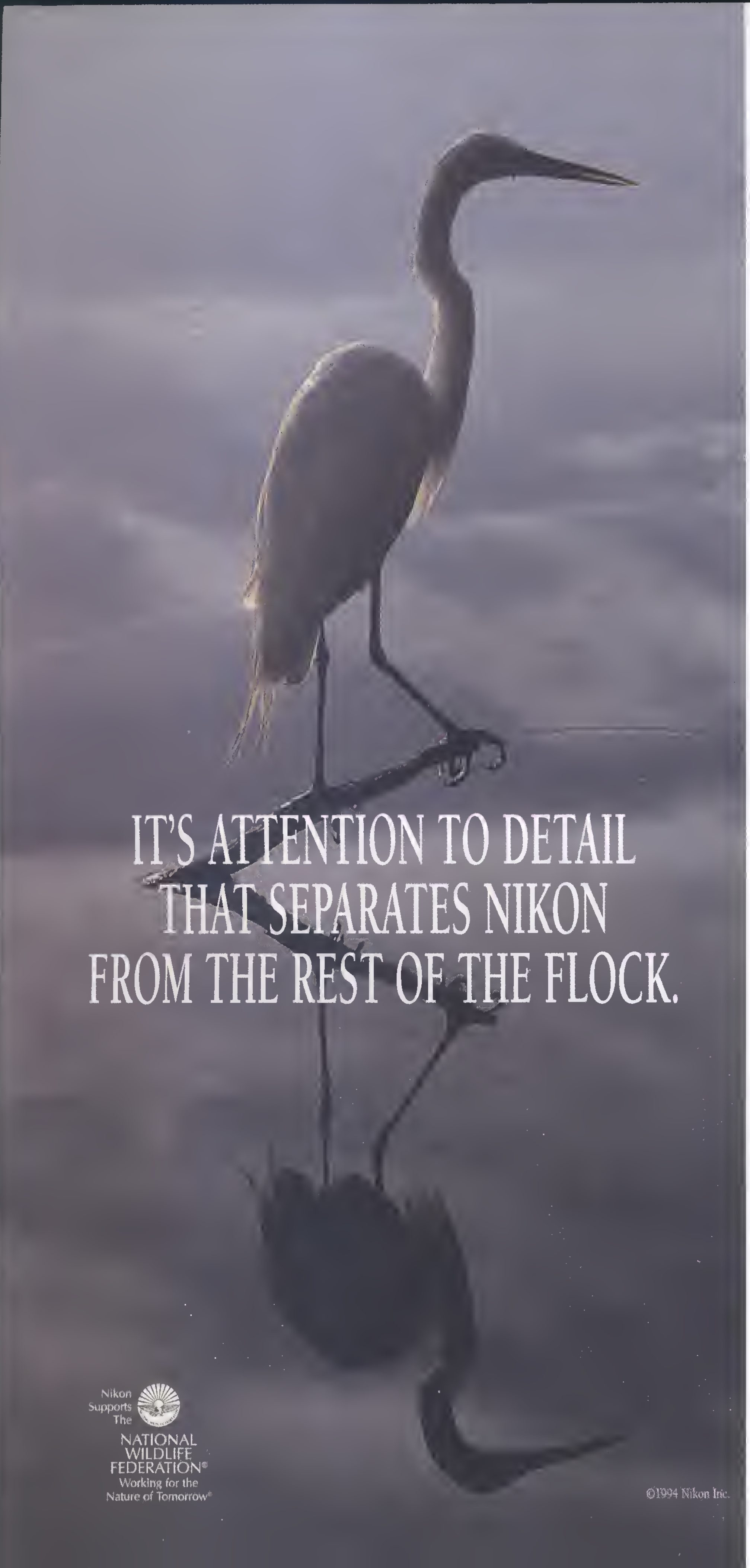

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LIVING BIRD

SUMMER 1994 VOLUME 13 NUMBER 3

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Greetings from Sapsucker Woods

Taking pictures and finding illustrations for *Living Bird* is always an interesting and varied (and sometimes bizarre) experience. This was particularly true for this issue, which took me from the squalid to the sublime in search of the right images to accompany articles.

My quest for photographs to illustrate Alexander Skutch's article on feral Rock Doves, "The Unappreciated Pigeon," led me to the inner depths of a crumbling Northeastern metropolis, where I loitered near bus terminals and city parks—sometimes lying down amid cigarette butts and grime—trying to snap pigeon-eye-level pictures of the courting birds. In one park I visited, a lone statue of Christopher Columbus stood high above the square, his head and shoulders adorned with cooing pigeons. This seemed appropriate, considering that the root of his name is the ancient Latin word for pigeon—*columba.*

Moving on to the sublime, I visited Cornell University's Hill Ornithology Collection with *Living Bird* designer Kat Dalton to find illustrations and take pictures for Jane Hardy's article, "Birding by the Book." The collection—consisting of rare books, some dating back to the 17th century—is housed on the main campus, five miles from Lab headquarters in Sapsucker Woods Sanctuary.

The books are wonderful—exquisite volumes, bound in leather with gold-leaf lettering and trim, many of them containing vivid, hand-colored illustrations. With white cotton gloves in place, we carefully perused volume after volume, fascinated by the writing and illustrations of some of America's pioneer ornithologists.

I hope you enjoy the issue.

Tim Gallagher
Editor-in-Chief

Cover: A juvenile Semipalmated Sandpiper takes time to rest and replenish its strength while en route south on its first migration. Photographer John Heidecker took this attractive portrait during late summer at New York's Jamaica Bay.

Right: A feathered pariah to some, the common Rock Dove can be fascinating to observe, if you take time to learn more about the bird. Trace the history of this misunderstood species beginning on page 25. Photograph by Tim Gallagher.

Back cover: A young Laysan Albatross tests its wings on Midway Island. Photograph by Milo Burcham.

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Letters

NO MORE MISSING MAGAZINES

I just received in the mail a plastic bag containing the paper wrapper from the Summer 1993 issue of *Living Bird* [but no magazine]. This must be the third or fourth time this has happened in as many years. I don't have this problem with other publications—but they don't use paper wrappers.

Although your covers are beautiful, I don't think protecting them with a wrapper is worth it for me, compared with the frustration of not receiving issues of the magazine. Who knows how many I've missed altogether.

Anyway, if you have a spare issue, please send it: I'd still enjoy it, I'm sure.

Tom Strikwerda
Kensington, Maryland

Since we started using a wrapper to protect Living Bird *covers, we've received about 20 letters like yours every quarter. We promptly sent each person a new magazine, but we worried: How many more people failed to receive the magazine, but never wrote to tell us?*

We tried switching to a heavier paper wrapper; we tried using an extra staple to attach the wrapper to the magazine; and we checked with the U.S. Postal Service to see what else we could do to solve the problem. Their reply? Because the magazines are handled by machinery, a certain amount of tearing is expected—and acceptable.

It wasn't acceptable to us. With the Winter 1994 issue, we started mailing Living Bird *in an envelope. This protects the cover and allows us to send you* Birdscope *in the same mailing. Let us know if this change solves the problem of the missing magazines.*

WHY STUDY CORRIDORS?

Re "Corridors for Conservation" in the Winter 1994 issue: The authors say no studies have shown that species use corridors to travel between habitats, or that species diversity increases when two habitats are connected by a corridor.

Providing a corridor where there might otherwise be roads, grazing cows, or houses will certainly benefit birds and wildlife. We don't need umpteen scientific studies to prove this.

The authors also say "Every dollar spent on a corridor is a dollar not spent on some other conservation measure." However, every dollar spent on another scientific study to prove a common-sense thing is a dollar *not* spent on acquiring and protecting habitat for our birds and wildlife.

Mary C. Dreiling
Syracuse, New York

LOGGED LAND IS PROTECTED LAND

In the Autumn 1993 issue of *Living Bird* you advised readers to question logging because it destroys habitat

I am a farmer, forester, and logger. Having managed the same properties for more than 20 years, I don't think I have destroyed much habitat. If anything, sound economic management has protected these properties from development.

David C. Sears
Shelburne, Massachusetts

NO NECK BANDS, PLEASE

Re "Creatures of Habit" in the Spring 1994 issue, permit me to say that I find the practice of neck banding wildfowl to be absolutely appalling. It often inflicts stress and usually results in death when, in winter conditions, ice and snow build up on the collar; the birds are unable to fly or feed and freeze or drown with the weight of the collar. I have seen this with my own eyes.

No matter how much the statistics may be required, there is no excuse for this cruel and archaic practice.

Olive M. Root
Belleville, Ontario

We welcome letters from readers.
Address letters to: The Editors, *Living Bird*, 159 Sapsucker Woods Road, Ithaca, New York 14850.

BirdNews

ALBATROSS ATTRACTION

It's usually good news when a bird population grows—but not when Laysan Albatrosses, recolonizing the Hawaiian Islands, began nesting on Oahu airport runways. Dogs, cats, mongooses, and gun-slinging humans are attacking the turkey-sized birds, which themselves create hazards for airplanes.

How to resolve this real estate conflict? Last December, Lab associate Stephen Kress and his colleague Richard Podolsky began enticing albatrosses to Kaohikaipu (Black Rock) Island, a wildlife refuge off the Oahu coast. The project is funded through the U.S. Fish and Wildlife Service's Biodiversity Joint Venture Program.

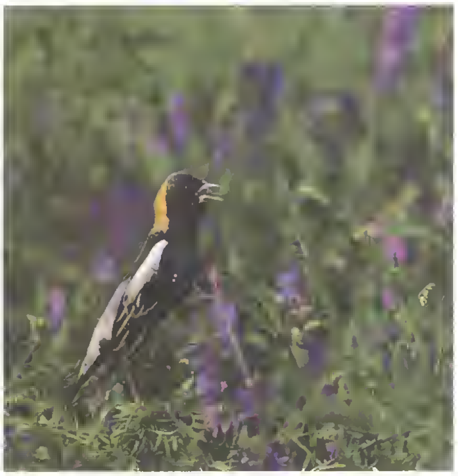
Kress, a National Audubon Society researcher based at the Cornell Lab of Ornithology, specializes in seabird restoration: he has brought Atlantic Puffins back to two Maine islands from which they'd been extirpated, and attracted Dark-rumped Petrels, an endangered species, to safe nesting grounds on the Galapágos Islands.

To convince albatrosses that the island would make a great home, the researchers planted a fake colony there: 50 life-sized albatross models in courtship poses, fuzzy chicks fashioned from sheepskin and wood, and ceramic eggs hand-made by schoolchildren in Ithaca, New York. Kress and Podolsky also installed a solar-powered compact disc player that broadcasts the sounds of mating albatrosses. The Lab's Library of Natural Sounds provided the sexy CD.

STEPHEN W. KRESS

Real researcher Kress with imitation albatrosses (note sheepskin chick).

The ruse seems to be working. Volunteers from the Hawaii Audubon Society and Sea Life Park are monitoring the island; Kress reports that live albatrosses are courting among the decoys.


STEPHEN KIRKPATRICK

Fresh off the farm: a singing Bobolink

CROPLAND GROWS BIRDS

A government program that pays farmers to leave their fields fallow is growing grassland birds instead—on land that's part of the U.S. Department of Agriculture's Conservation Reserve Program (*Conservation Biology,* vol. 7: 934-937; 1993).

A census of breeding birds in four northern states (Montana, North Dakota, South Dakota, and Minnesota) showed 16 species nested in greater densities on reserve lands than in cultivated fields. Only one species, the Horned Lark, was more abundant on cropland.

Of the 16 species that seemed to be flourishing on reserve lands, several—including the Clay-colored Sparrow, Bobolink, Dickcissel, and Baird's Sparrow—have experienced major declines over the past 25 years. Populations of two species—Lark Bunting and Grasshopper Sparrow—have been cut in half. The Conservation Reserve Program may be helping to reverse these downward trends.

THE REAL MACAW

Parrot expert Charles Munn has rediscovered the Blue-throated Macaw in Amazonian Bolivia. Conservationists long assumed the colorful parrot was all but extinct in the wild—it was known only from a handful of museum skins and about 200 captive birds held by Bolivian bird dealers.

A local guide who had formerly trapped and traded the species guided Munn to a palm grove where a pair of the birds nested. About 28 other Blue-throated Macaws have since been located nearby. The exact location is being kept secret, to protect the birds from poachers while Munn studies the birds and develops recommendations for protecting them.

GOLF COURSE BIRDIES

A surge in tourism and development on the Pacific island of Gaum destroyed most wetland habitat for the endangered Marianas Common Moorhen. Recently, however, developers and biologists banded together to make moorhens as welcome as tourists at Manengon Hills, the largest resort on the island.

The developers built about 50 wetlands on the property, to replace habitat removed during the resort's construction. Moorhens began nesting in one wetland soon after it was completed, even though it was located near several golf tees, a golf-cart path, and a two-lane road.

Although artificial wetlands can never achieve the complexity of natural habitat, biologists hope they can still help this endangered subspecies.

COMPILED BY CYNTHIA BERGER

Flying Field

IF I WERE A BIRD

by Mel White

On the wings of a dream bird

If the birds were watching me, back when I started watching them, I'm sure they learned my habitat quickly: my family's yard, and the neighbors'; my school, a half-block away; and the alley that ran from our house to the little storefront grocery where I was sent to fetch bread and milk. I was pretty much a permanent resident within this limited range. It was a time in my life when a "Baltimore Oriole" whistling in the backyard ash tree or a "Yellow-shafted Flicker" drumming on the metal roof of our garage was a discovery worth running to tell Mom about. Most of the pages in the field guide were as foreign to me as Zanzibar.

Naturally enough, when birds became part of my life I tried to make them part of my play. The most immediate way to do this was to pretend to be a bird. As it turned out, this was much less satisfying than pretending to be, say, Mickey Mantle or a saber-toothed tiger. It doesn't take many times running down a grassy hill with your arms outstretched to realize that the wonderful thing about birds is that they can fly, and the awful truth about people is that we can't. Pretending isn't a satisfactory substitute; every swoop reaffirms the huge gap between up there and down here. Not even a child's tensile imagination can span the distance.

So I switched from the indicative to the subjunctive: If I were a bird, what would I want to be? Sometimes friends shared this game, but they, not having quite my enthusiasm—not having spent hours tracing and coloring Roger Tory Peterson's paintings, for instance—were at a disadvantage. Their repertoire was limited. How dull and obvious, it seemed to me, to immediately call out "Eagle!" as if that assured unsurpassed glory—as if that cornered the market on bravery. How pretentious. I always enjoyed telling people the truth about eagles—their secret character flaws and their dining habits. Looking back, it seems to me that the children who choose eagles in this game are the very ones who later will run for political office, self-confidently sure that they know what's best for the rest of us. Let them be eagles, I thought, or owls, or, for the vain ones, cardinals or hummingbirds. I wanted to be a "Duck Hawk."

All right—this was pretentious, too, but at least it wasn't obvious. Duck Hawks weren't feathered metaphors, icons on money and flagpoles. Duck Hawks were unknown to most people; they lived in wild places I'd barely heard of, and they didn't give away anything in bravery and fierceness. Best of all, they were the fastest birds in the world. In their deadly stoop from some unimaginable height to knock a doomed victim out of the sky they had been timed at 170 miles per hour: the invincible jet fighters of the bird world.

And then there was Audubon's painting of the bird. He shows a pair of Duck Hawks (he called them "great-footed hawks") tearing into two freshly caught ducks, the female's bill literally dripping blood as she enjoys the reward for her speed and skill. It was a picture to make little old ladies (i.e., the teachers who forced me to spend so many boring hours in school) and prissy girls turn their heads in horror. Ha! No dead fish for the mighty Duck Hawk.

It was an age—and I was of an age—when blood didn't have quite the connotations it has today. Later, scientists (who can be counted on to spoil many things for us) changed the name Duck Hawk to Peregrine Falcon and reported that the bird was perfectly willing to forsake the wilderness for city skyscrapers and live on a steady diet of pigeons. Worse, ornithologists crowned a new world speed champion: the White-throated Needletail, a swift that tears past Asian precipices at more than 200 miles per hour . . . catching bugs.

What bird would I be? I'm not ashamed to say that I still occasionally consider this. From what I've read, I don't believe I'm alone. Dr. Peterson himself is sometimes called King Penguin. My perspective today is different, though: no longer that of a small boy dreaming of adventure, but more like a tired workingman considering a retirement community. Majesty takes a back seat to practicality. Sometimes when I'm on the beach in south Texas, I think that I wouldn't mind being a Laughing Gull. They seem to have a pretty good time. The weather's nice practically year-round, and they always have lots of company. But I'm really not very comfortable in crowds, and there's the matter of food: cast-off french fries in parking lots, stale bread thrown off the back of boats, stuff washed up on the beach. . . . I guess I'll pass.

To tell the truth, for a while I was thinking seriously about Blue Jays. Consider the advantages:

- They're in the crow family, which many scientists think may be the smartest bird group. No bird is ever going to earn a Rhodes Scholarship, so it seems to me that every little bit of intellect would help.
- On the other hand, they're not actually crows, with their attendant repu-

tation and conspicuousness, so not as many people are out to gun them down. And they're not harassed so much by kingbirds.

- They're omnivorous, which means, conversely, that I wouldn't have to eat anything I didn't like. Maybe after my transformation a grasshopper would look as good to me as a New York steak does now, but why take a chance? I could live on blackberries and acorns if I wanted to.
- They're semi-migratory, which I take to mean that if I felt like going up to Maine for the summer I could, or if I felt like just lazing around New Orleans or Palm Beach, I could do that. No forced marches twice a year.
- They don't put up with a lot of stuff from anybody.
- They're the first to show up whenever there's any kind of trouble, and they're not afraid to take on just about anything.

As a matter of fact, I have a small scar on my forehead, right at the hairline, courtesy of a Blue Jay whose near-fledgling I was trying to return to the nest some years ago. I was up on a ladder, replacing the lost child, when out of nowhere . . . Pow! I'm lucky I escaped with both eyes and no broken limbs. You have to admire a bird like that.

Great footed hawks by John James Audubon

Let other kids be eagles, I thought, or the vain ones, cardinals. I wanted to be a Duck Hawk.

But something happened the other day that put me off Blue Jays. One of the things I liked was that they didn't seem to give a rat's tail what anybody thought about them. They whoosh into a feeder, scare off all the lovable little chickadees and siskins, and scarf down a dozen sunflower seeds whole, purposefully ignoring the person banging on the window a few feet away. Manners? Propriety? Decorum? Blue Jays don't care. Or so I thought.

Not long ago I was walking home from an afternoon jog when I came upon a pair of jays on the sidewalk. They were doing what looked like a little dance, hopping back and forth and around each other, clucking softly. I assume this is as close to romance as Blue Jays get. It was charming, really. At any rate, they (most uncharacteristically) weren't at all aware of me. I got within five or six feet and stopped to watch them before they suddenly snapped out of their trance, froze, and then bounced up into a small tree, where they hunkered down with a sort of hangdog look that reminded me of Barn Owls. They were embarrassed! They were ashamed that I'd got the drop on them and seen them doing something un-Blue-Jay-like.

I should have known what would happen next. They could have quietly flown away and dropped the matter, but that wouldn't have been the Blue Jay way. Only Blue Jays would try to get out of a spot like this on sheer bluff. You could almost see them pull themselves together, whereupon they started screaming at the top of their lungs, doing their tough-guy, protector-of-the-neighborhood bit, hoping to fool anybody watching into thinking that they (ever-vigilant) had detected a dangerous aggressor (me) in the nick of time and now (as always, ignoring their personal safety) were bravely sounding the alarm.

Come on, guys! I caught *you*! Can't you just accept it and laugh and go on? Besides, who's around in this neighborhood for you to warn? Starlings and squirrels? Since when did a Blue Jay ever care about starlings and squirrels?

The sin of pride is a dreadful failing. It makes you do stupid things. The fact is, those jays didn't care about the starlings and squirrels; they weren't trying to fool them. They didn't care about me, either. Those Blue Jays were trying to fool themselves.

So Blue Jays are off my list. Still, I think I was onto something with the crow family. It takes a pretty smart bird to learn to dissemble like that. Maybe I just need to change my criteria a bit. Maybe the problem with Blue Jays is that they've been around civilization too much, picked up too many human traits.

Have you ever been to the Colorado Rockies? Way up in the mountains where the Engelmann spruces frame the blue glacial tarns? Have you ever been there in September, on the cusp of the seasons, when the aspens are turning and the atmosphere seems as transparent as the moon's?

Lately I've been thinking seriously about Clark's Nutcracker. ■

A LESSON FROM MOTT'S CREEK

by Jack Connor

Taking time to delight in the simple pleasures of birding

Binoculars trembling in my fingers, tears in my eyes from the January glare, face stiff from the hard wind, I am standing between Brian Sullivan and Jerry Liguori and wondering, "Why don't I come out here every single day?"

For years I thought of the Mott's Creek salt marsh, three miles from my house, as just one of the better local birding spots. The vista is pretty—a long line of oaks on the upland side, *Spartina* grasses leading out to hammocks of cedar and pine on the horizon—and I could usually spot a few harriers here and a red-tail or two.

Now, thanks to my companions, I have a very different understanding of this place.

"Is this another adult golden?" asks Brian.

"I think maybe dark-belly bald," says Jerry.

"Where are you two looking?" I ask.

"Up in the blue, pretty far out," says Brian. "It's only a dot."

"It's a smudge," says Jerry.

"It's invisible," I say.

"The wings are bowed like a golden's, Jer."

"But look how big the bill is, Bri."

Brian Sullivan was a student of mine, and a beginning birder, only three years ago. He says now my course turned him on to birds, but the truth is *birds* turned him on to birds. He liked to leave at the five-minute break halfway through class and head off to Brigantine Refuge, six miles down the road. Or he'd skip the first half of class and show up at the break with a gull feather or a fragment of eggshell he wanted identified. One day he appeared with a dead warbler he'd found next to one of the library's windows. I showed him that the streaked throat and yellow eyeline meant it was a Northern Waterthrush. "Thanks," he said, "I'm really learning a lot in this course." "Well, then," I said, "I'm glad you could make it for the second half of class today, at least." When the other students reassembled, however, his seat was still empty.

The next day I found him in the hallway. Brian is six-foot-two, thin, and handsome, with long blond hair under the obligatory baseball cap. "I went out to the refuge after class yesterday," he said, "and saw three red-tails, two sharpies, five Turkey Vultures, and about a dozen harriers. It was great!"

"That wasn't after class you saw those birds. That was *during* class."

"Sorry," he said, smiling his winningest smile. "I couldn't wait to get out there."

I met Jerry Liguori late that same fall at the Avian Rehabilitation Center in Seaville, when he gave me a tour of the facility. Jerry said he'd been working with sick and injured birds since graduating from college a couple of years earlier. He has the body of a linebacker, but his voice is high-pitched and light, and as he led me from cage to cage he spoke so quietly I had to step close to hear. I couldn't tell whether he was discouraged by his surroundings or simply shy.

He knew the story of each bird: the one-legged Herring Gull's diseased foot had been amputated, the Great Blue Heron had lost its wing striking a power line, the two Oldsquaw ducks had been found in an oil slick by a local fisherman, the three Red-tailed Hawks had each been crippled by gunshot. Jerry said that he was getting more interested in bird watching and asked what binoculars I'd recommend. "I want to get out in the woods and learn more about healthy birds, living in the wild," he said.

That January, when Brian first claimed that he'd seen four different

JACK BARRIE

"A fews moments later, Brian points out a Bald Eagle above the nearest hammock."

Golden Eagles in a single day at Mott's Creek, I dismissed it. In 10 years of visits there, I had seen only two Golden Eagles ever—and I had never heard of anyone seeing four in one day anywhere in New Jersey. He had probably misidentified the same Bald Eagle four different times, I decided, or let his imagination work on some Turkey Vultures. When Jerry called soon after to say he had his new binoculars and he'd found a Great Horned Owl nest, with an adult on eggs, I figured it was beginner's luck.

Brian called back a week later to say he'd had the four goldens again at Mott's Creek, this time all in sight simultaneously. Jerry soon found another owl nest, two miles from the first. "There's a little chick in this one," he said.

The next I heard they had encountered each other at Mott's Creek. "I met a fellow from your class," Jerry told me. "He was looking at a couple of Golden Eagles. He said they were both adults, I said one was an immature. We were at each other's throats immediately."

In the two winters since that meeting, Brian and Jerry and a few of their friends have kept an informal, almost-daily hawkwatch on the salt marsh and have proven something I still find startling: Mott's Creek is a major wintering site for Golden Eagles—the best place in New Jersey to see this rare western species, and perhaps the best place anywhere on the East Coast.

But documenting an avian phenomenon is not what these young men are after. What attracts them is the physical pleasure of standing in the wind under a cold sky, and the simple satisfaction of watching a distant dot become a recognizable bird overhead. It's the kind of birding I've drifted away from in my middle age: birding without a purpose—for the sheer joy of it.

They keep stopping by the house, asking me to join them, and no matter what excuse I give—I have papers to grade or one of my kids needs a ride somewhere—they are not discouraged. A few days later they stop by again. "Yesterday we had two goldens, three balds, and a male harrier. *Come on!*"

This morning I hoped to surprise them by beating them to their rendezvous. At dawn the kitchen thermometer registered six degrees Fahrenheit, and the radio weatherman said it would be the coldest day of the year, with a strong northwest wind and wind chill in the negative numbers. Even a stick-in-the-mud knows that's when eagles fly. I layered up—thermals, wool socks, wool sweater, best gloves, heaviest boots—and left the house at 8:15. I'd beat them to the creek by half an hour, I figured. By the time they arrived, maybe *I'd* have something to tell *them* about for a change.

"You haven't missed much," said Brian, when I pulled up in my car, "one adult bald and a light-phase rough-leg."

"Yeah," said Jerry, "and two Short-eared Owls we had at first light."

By noon we have seen at least seven different eagles: one adult golden, two immature goldens, and four Bald Eagles. When an eagle swings low, mergansers, Buffleheads, and Black Ducks rise from the marsh in front of us as if a gun has been fired. An adult Golden Eagle swoops across the grass, chasing a flock of Black Ducks, and the Great Blue Herons nearby—six, seven, eight, ten, twelve great blues—come flapping out of the brush, *gronk*ing in complaint.

A few moments later, Brian points out a Bald Eagle above the nearest hammock, and I find it in my binoculars just in time to witness something I have seen before only in textbook diagrams. The bird tucks into teardrop position, gains momentum in a straight descent, then opens its wings, swoops upward, rolls over on its back, and completes a reverse loop-the-loop. Then, as if to be sure we have noticed, it repeats the whole sequence again. And again. Three over-the-back roller-coaster loops in less than a minute.

"Wow!" I say. "Can you think of any place in South Jersey, any place in *North America*, you'd rather be than right here?"

"Not me," says Jerry. "This is the best . . . . Rough-leg coming, high over the pines."

"Yeah," says Brian, "a dark-phase. My favorite."

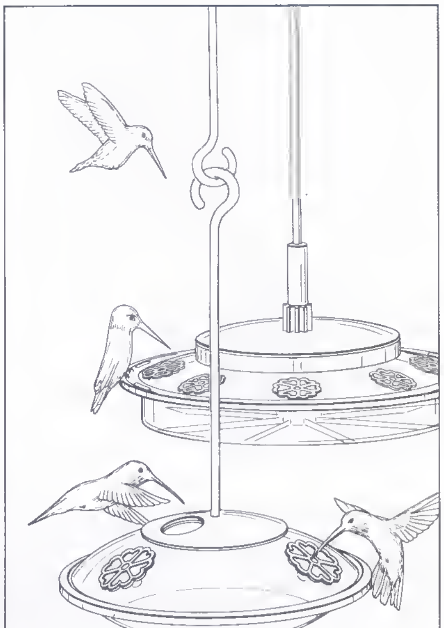
"Where are you two looking?"

"It's a dot," says Jerry.

"A smudge," says Brian.

"Looks like it's missing a wing feather, Bri."

"You're right, Jer. Which one is that—the seventh primary?" ■



Mmm hmmm!

(Our hummingbird feeders are beyond words.)

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Doctor Birdseed

by Peter Stangel

Biologist Aelred Geis's ground-breaking studies provide the best information to date on which seeds birds prefer

The House Finch's behavior perplexed me. Through my kitchen window I watched as it methodically extracted one sunflower seed after another from my feeder, rotating each seed rapidly in its bill like a person mouthing food that's too hot. It would eat two or three seeds in a row and then, for no apparent reason, drop one to the ground. To my chagrin, the main beneficiary of this behavior was a squirrel that squatted beneath the feeder, reaping the bounty from above.

Why did the bird eat some seeds while dropping others? After all, they were black-oil sunflower seeds, supposedly the food of choice for many backyard birds, including House Finches. Perhaps the finch was rejecting moldy seeds or ones infested with insects, I thought. Or perhaps some seeds fell as the finch maneuvered them in its bill. With black-oil sunflower seed priced at $17.50 a bag, I felt I deserved an explanation for the finch's finicky behavior.

The explanation, according to Aelred Geis, is that the bird was only interested in seeds of a particular size and shape. He should know. A retired U.S. Fish and Wildlife Service (USFWS) biologist, Geis has spent more time studying wild bird seed preferences than anyone else. After measuring thousands of rejected seeds, Geis found that House Finches and some other seed eaters preferred oil sunflower seeds that were heavy, small, and plump.

Geis provided this insight during an intriguing phone conversation that led me to visit his home in Howard County, Maryland, where he has studied bird food preferences for a decade and a half. At breakfast in a kitchen warmed by a wood stove, Geis recalls how he learned that seed size and shape were important to feeder birds.

"My initial experience with size preference was out there," he says, gesturing to a large tube feeder hanging outside the kitchen window. "A remarkable thing happened. I was testing tube feeders to see which models birds preferred. All of a sud-

Al Geis, left, fills one of the many feeders on his Maryland property. Geis's backyard studies have revealed most of what we know about wild birds' seed preferences.

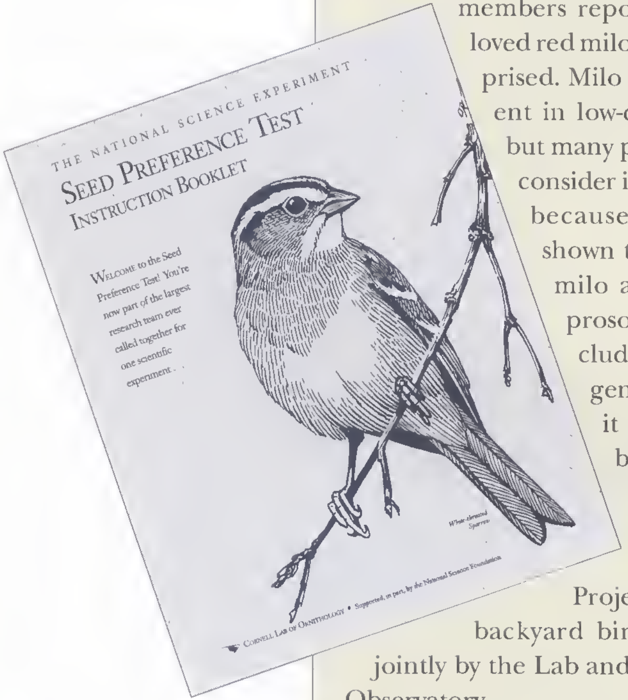
PETER STANGEL

A New Seed Preference Test

Aelred Geis's seed-preference tests provide the best available information on what seeds birds like best. His findings are considered authoritative by many ornithologists. Most bird seed preference charts, including the one distributed by the Cornell Lab of Ornithology, use Geis's research as their source.

So a couple of years ago, when some Lab members reported that their birds loved red milo, Lab staffers were surprised. Milo is a common ingredient in low-cost bird seed mixes, but many people who feed birds consider it useless. Why? In part because Geis's studies had shown that no species found milo as attractive as white proso millet. He had concluded that "in view of its general unattractiveness it probably should not be used."

We heard a different opinion from some participants in Project FeederWatch, the backyard bird count conducted jointly by the Lab and the Long Point Bird Observatory.



THE NATIONAL SCIENCE EXPERIMENT

SEED PREFERENCE TEST

INSTRUCTION BOOKLET

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Ralph Fisher of Silver City, New Mexico, says that he has been feeding birds in New Mexico for more than 25 years, that he supplies milo almost exclusively, that all the people who feed birds in his region use milo, and that over the years he has observed at least 52 species of birds eating milo.

Sally Hoyt Spofford of Portal, Arizona, concurs: "In February of 1972, when we first came [to Portal] to spend about four months, I brought 50 pounds of cracked corn, which my Etna [New York] birds loved. The birds would not touch it, and a neighbor told me they wanted milo. Now I use between 600 and 800 pounds a year, and that is peanuts to what some use. A friend in the next mountain range east uses several tons a year—he even has the rare Montezuma Quail coming for it. I've never kept track of the birds that eat mine, but I know they include towhees, juncos, cardinals, jays, Pyrrhuloxias, doves, quail, House Finches, and various sparrows including Lincoln's. And, when we're birding in winter, we always check milo fields, as that is where we will find the birds—eating the milo that fell to the ground when harvested."

Why did these folks contradict Geis's findings? One possibility: Southwestern birds have different seed preferences than birds in other areas. Although Geis had expanded his original studies to include tests in California, Ohio, and Maine, he had no study sites in the Southwest. Could there be regional differences for which Geis was unable to test?

This question helped to launch the Cornell Lab of Ornithology's National Science Experiment/Seed Preference Test. Lab educators had been looking for a good question to test the National Science Experiment concept, which is that people can contribute to the field of ornithology and learn about the process of scientific investigation by participating in actual bird research. The case against red milo seemed perfect. It was likely to interest thousands of backyard bird enthusiasts, and it intrigued the Lab's population biologists. Furthermore, the birdseed industry wanted to know the truth about this mysterious red seed.

By March 1994, the experiment was in full swing. Owing partly to excellent reporting on ABC's "Good Morning America," more than 17,000 backyard birders were testing their birds' preferences for black-oil sunflower seed, white proso millet, and red milo, using an experimental design carefully developed by Lab biologists. Although just a handful of data sheets had been returned, they revealed some fascinating results. Some birds, such as American Tree Sparrows, were definitely more interested in red milo than ornithologists had expected. Regional differences in seed preferences did seem to be surfacing. And, participants seemed pleased and excited to be directly involved in Lab research.

The final results of the Seed Preference Test will be published in the Autumn 1994 issue of *Birdscope.* Meanwhile, Lab staffers applaud Mr. Geis for his groundbreaking research on this topic. Without his studies, the Lab's Seed Preference Test might never have been started.

—*Rick Bonney*

den the price of oil sunflower seeds went down and, lo and behold, the birds really liked this cheap seed—because it was small. By industry standards it was not very high quality seed, but by bird standards it was just right."

Geis confirmed his observation by individually examining seeds discarded by birds. He placed containers beneath feeders in his yard and collected seeds rejected by finches, chickadees, and others. He sorted seeds using screens of differing mesh size, carefully measured and weighed a sample from each group, and then compared these with seeds taken right out of a new bag. The result? Birds were rejecting large, lightweight seeds in favor of small, heavy, plump seeds.

Geis's interest in seed preference began when the USFWS assigned him the task of starting an urban wildlife program. "That was about 15 years ago," says Geis. "I got into urban bird feeding because of the tremendous opportunities for environmental education, like teaching people the need for habitat. I soon realized that nothing was known about the relative attractiveness of different bird foods. The public deserved to know more about how to feed birds."

Geis's 20-acre farm, a few miles north of Washington, D.C., was an ideal spot for feeder studies. "This property has a rich bird population," he says, "and it's convenient." The farm's greatest asset, however, was the availability of an excellent field assistant—Geis's mother, Leitha.

Leitha Geis lives in a cozy home nestled in the woods a short distance from her son's house. Visitors quickly realize that this is no ordinary home. Outside Leitha's kitchen and living room windows you can see an array of feeders being used for various experiments. From the comfort of her living room, Leitha has spent hundreds of hours recording the seed preferences of neighborhood birds. Geis estimates that Leitha, who began helping him on this project when she was 70, has made nearly half a million observations on birds' seed preferences.

Geis's first seed preference study was aimed at determining the relative attractiveness of 22 different food types compared to black-striped sunflower seeds and white proso millet. Geis chose these two as standards because both are commonly used and most feeder bird species find one or the other attractive.

The results of this project provide the basis for much of what we know about which seeds backyard birds prefer. Armed with Geis's data, you can design a custom feeding program to attract, or discourage, particular species. For example, Geis discovered that whole peanut kernels are the most attractive feed for Blue Jays. Black-oil sunflower seeds were only one-fifth as appealing to the jays as black-striped sunflower seeds, suggesting that omitting peanut kernels and providing black-oil sunflower seeds in place of other varieties would be a good strategy for people who wish to discourage Blue Jays.

Geis published the results from this research in 1980 as Special Scientific Report No. 233, "Relative Attractiveness of Different Foods at Wild Bird Feeders"—the most popular technical report ever produced by the USFWS. The report's popularity is no surprise to Geis. "More people feed birds than hunt and fish combined," says Geis, referring to a 1985 survey indicating that over 60 million people in the United States feed birds.

AELRED GEIS

Geis and his premier research assistant, mother Leitha Geis, survey the feeders outside her living room window. Birdseed companies have used the team's findings to shape their product lines, according to Geis, who says, "Most of the biggest names in the bird feeding industry have sat right here in this room."

Special Report No. 233 was just the beginning for Geis. When critics suggested that his seed preference results might have been peculiar to Maryland, Geis expanded the research to include sites in California, Ohio, and Maine. Data from these sites not only supported his original findings, but revealed that individual species exhibited the same seed preferences throughout their ranges.

Over the years, Geis's research has led him to challenge some of the "golden rules" of bird feeding. For example, how many backyard bird watchers provide food every day, fearing that an empty feeder will cost some poor, feeder-dependent bird its life? I certainly fall into this category, even going to the extreme of having a neighbor fill my feeders when I have to be away from home.

"That's ridiculous," Geis booms over the din of five barking dogs that have joined our kitchen table chat. "Man is very egocentric—he likes to think he is more important than he is. Most birds range over a large area and get their food from a variety of natural and human-provided sources."

PETER STANGEL

Geis used this four-part feeder for his seed preference tests. He compared two "standard" seeds—black-striped sunflower and white proso millet—to a variety of other seeds.

Geis first questioned bird dependence on feeders when he tried to estimate local bird populations. In the case of the House Finch, for example, Geis banded over 1,200 birds one summer, but observed that only one House Finch in five at his feeders was banded, suggesting that the local population was five times as large. By calculating the energy requirements for an individual finch and multiplying by the estimated population size, Geis quickly realized that the seed he was providing was not nearly enough to sustain the local finch population. The birds were clearly getting additional food from other sources.

Stanley A. Temple of the University of Wisconsin and his student Margaret Brittingham, now an assistant professor at Pennsylvania State University, reached a similar conclusion independently. In an intensive study of feeder dependence by Black-capped Chickadees conducted in Wisconsin, Temple and Brittingham found that most chickadees obtained only about 21 percent of their daily energy requirements from feeders. The researchers concluded that the birds they studied depended primarily on natural foods, using feeders merely to supplement their diets.

So we can skip filling our feeders on an occasional weekend or two without harming the birds. Geis's work, as well as the research conducted by Temple and Brittingham, suggests that birds are not quite as dependent on us as we think they are—with one caveat: Temple and Brittingham found that during periods of extreme cold, chickadees with access to feeders had a greater chance of surviving than those without a supplemental food source.

Another golden rule that Geis helped to debunk concerns the relative merits of seed mixes. Many consumers think that the more kinds of seed a mix contains, the more bird species you'll attract. Not true, says Geis. "There are one or two dominantly attractive foods, and you accomplish little by feeding more than that." Geis found that many common seed mix ingredients, such as sorghum, wheat, and corn, are much less attractive than other seeds to birds.

Geis takes his criticism of mixes a step further. "It is almost impossible to produce an ideal mix because the species present change from place to place, and from time to time at the same place," Geis says. "Different species also feed in different ways and in different places, like on the ground or on feeders. When you mix a seed preferred by ground feeders with a seed used by birds that like to eat from elevated feeders, you've got a problem."

Geis's solution? Put preferred foods in the preferred feeding places. He recommends, for example, using white proso millet on the ground for sparrows, juncos, doves, and other ground feeders, and black-oil sunflower seed in elevated feeders for chickadees, finches, and the like.

Although most retailers have been reluctant to eliminate the tremendously popular seed mixes from their shelves, Geis's research has influenced the ingredients used in mixes. "We used Geis's recommendations to blend our premium seed mix," says Jane Crowley, director of communications for Wild Bird Centers, a retail chain. "We even named the mix after him."

GORDON VICKREY

Unfortunately, not every bird seed distributor knows or cares about Geis's recommendations. Several of the primary ingredients in the seed mix sold at one of my local Virginia supermarkets are at the bottom of the preferred food list Geis compiled. Geis fears that when novices purchase these low-quality mixes, they might become discouraged by the lack of results at their feeders. This is almost unbearable to Geis, who, since retiring from the USFWS in 1987, spends considerable time educating consumers about bird food preferences. As director of research for the Wild Bird Centers, Geis writes a column in the company's newsletter that reaches thousands of bird feeding customers.

After breakfast, Geis takes me on the short walk down to his mother's house. Inside, we settle in front of her living room window, where the view is enough to warm the heart of any ornithologist—or seed salesperson. A steady procession of Northern Cardinals, Black-capped Chickadees, Tufted Titmice, White-throated Sparrows, and other species dart out of nearby shrubs to snatch seeds from the dozen or so feeders outside the window. As we watch, Geis and his mother trade stories about their experiences.

"Many of the biggest names in the bird feeding industry have sat right here in this room," Geis says as we watch birds swarming at the feeders. "It's kind of ironic that my little one-horse operation has generated so much of the data that exist, and we're talking about a billion-dollar business," he says.

Ironic, perhaps, but certainly not surprising, given Geis's interest in and commitment to urban wildlife issues and public education. Reflecting on his career, Geis says, "If nothing else, I feel good that I have helped people enjoy birds and bird feeding more"—a clear understatement, and certainly not a full representation of Geis's many contributions. It is, however, an accurate reflection of how Geis views his mission: helping people to enjoy birds and other urban wildlife. ■

LEONARD LEE RUE III

A Northern Cardinal, below left, eats a striped sunflower seed. Geis found that many bird species are more attracted to small, plump, black-oil sunflower seeds.

Geis's studies also debunked the notion that seed mixes such as the one this Dark-eyed Junco is eyeing, above, attract a variety of birds. He says it's best to offer the most appealing seeds in their pure form, but in a variety of places—on the ground and in different feeders.

Peter Stangel is director of the Neotropical Migratory Bird Conservation Program at the National Fish and Wildlife Foundation.

BIRDING by the BOOK

by Jane E. Hardy

A guided tour through Cornell's Hill Ornithology Collection

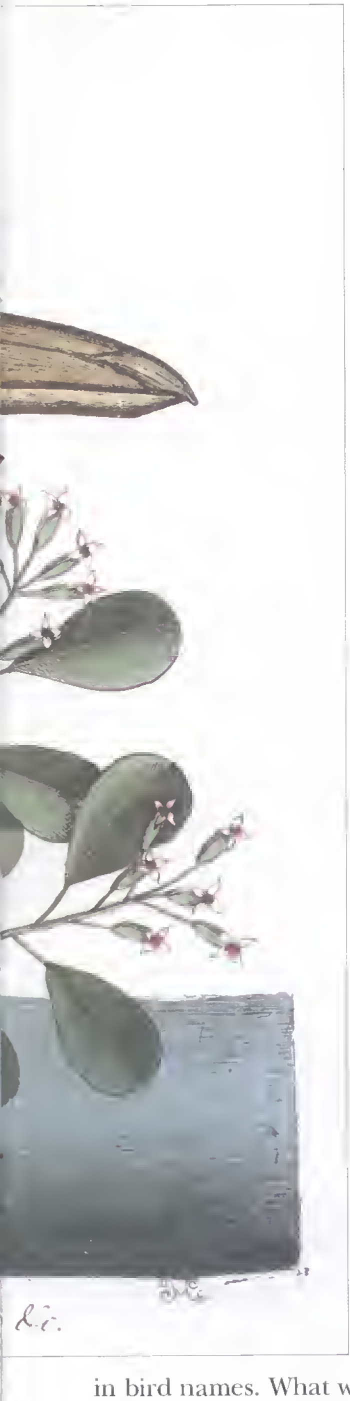
It's a blustery, snowy day as I walk through the doors of Cornell University's Olin Library. I'm going birding indoors—in the Hill Collection of ornithology books. Past Olin's bustling front desk and the reference area is the entrance of the Carl A. Kroch Library, where the collection is located. My steps echo on the slate floor, then the library quiet takes over. The elevator glides silently to B2, the lowest level, and leaves me in the circular reception area of the newest of Cornell's libraries. The gray-green carpet, the rose walls, and the blue Brazilian granite sculpture in the middle of the rotunda are bathed in a glow of light.

Margaret Rogers, the assistant curator of the collection, greets me softly in the main reading room. The oak chairs and light gray tables are lit from above with ingeniously arranged mirrors and skylights that belie the library's underground location far below the Arts Quad's snowdrifts. On a table corner Margaret has gathered her notes and a copy of *Ornithology Collections in the Libraries at Cornell University*, the descriptive guide by retired librarian Jeanne A. White that will be our starting point.

The Hill Ornithology Collection is part of Cornell's History of Science Collections, all of which are housed in the Kroch Library. These collections number some 35,000 volumes and include such rare items as medical dissertations dating from the late 16th century.

The Hill Collection is a gift of Kenneth E. and Dorothy V. Hill and includes many volumes from their personal collection of ornithological books. Kenneth Hill, a retired businessman, has a longstanding interest in ornithology and birding. He had been collecting rare books for several years when in 1971, after taking a one-week summer course taught by Peter Paul Kellogg at the Cornell Lab of Ornithology, he and his wife Dorothy began to consider contributing volumes from their private collection to Cornell, to be combined with

"Blue Birds," from *Illustrations of the American Ornithology of Wilson and Bonaparte*, by Thomas Brown.



of birds are found in *A History of British Birds*, published in 1797. The small volume presents birds in order of their appearance in spring in Britain, starting with the Wryneck in mid-March and concluding with a flycatcher in mid-May. Bewick's book shows wood engravings brought to a fine art.

Ornithologists can use the collection to trace the history of avian systematics, the process of classifying birds into related groups. Some of the earliest writers decided that an alphabetical listing would be sufficient to express the way bird families were related. In the 17th century, Francis Willughby and John Ray tried to solve the puzzle of bird relationships by looking at structure, function, and morphology to create the first major classification system for birds. Researchers today consider their system to be the start of scientific ornithology in Europe. Three books that detail the progress of their ideas are part of the Hill Collection.

It's also interesting to trace the changes in bird names. What we today call "common names" were used, without much attention to duplication or confusion, until Linnaeus introduced the system of binomial nomenclature in the 18th century to classify living creatures. This method, which names birds by genus and species, is still in use today.

How do you actually see these wonderful volumes? Some of the most fragile, such as Charles Lucien Bonaparte's *American Ornithology, or the Natural History of Birds Inhabiting the U.S.*, are protectively boxed; so are unbound volumes, to keep the corners of the pages from getting bent. If you wish to look at these you must be especially careful. Most volumes, however, are easy to examine.

The process is simple. You check the catalog for the titles of books you'd like to see, fill out request slips, and turn them in at the security desk. The librarian telephones your request to the vault, and someone brings your books in about 15 minutes. The exception is John James Audubon's "double elephant" folio. It's about four feet by three feet and requires special handling, since turning the pages risks damage to the binding. You must make an appointment a day or two in advance if you wish to see it.

Just looking at the books will, of course, not be enough for many visitors. Reference volumes can expand your understanding of the writers and artists and the techniques they used. Waldemar Fries writes about Audubon in *The Double Elephant Folio: The Story of Audubon's Birds of America.* Read it before you look at the Audubon books to enhance your experience with the work of this most famous of bird artists. Or look through the volumes of British naturalist George Edwards's *A Natural History of Uncommon Birds* and *How to Draw and Paint in Watercolor and Etch on Copper (1743-1751)* if you're interested in how the drawings were reproduced. Other reference books are available in both the library's main collection and the Hill Collection.

Finished with the preliminaries, Rogers and I walk to the rare book reading room. In the anteroom I check my coat and briefcase into one of the lockers beside the desk. Only pencil and paper can go with me as I examine the books. Free of contamination, I take the cart of books from the vault into the skylit reading room. Each book rests on a dark gray foam holder, angled

To see wood engravings brought to a fine art, check out Thomas Bewick's A History of British Birds *(shown below, his illustration of a Cedar Waxwing).*

The Hill Collection also features such works as Mark Catesby's Natural History of Carolina, Florida and the Bahamas Islands. *Art historians say his works foreshadow those of John James Audubon. Above left, Catesby's painting of a "Great Booby" (actually an immature Northern Gannett).*

to support the binding. I put on white cotton gloves to keep oil and perspiration from my hands away from the pages. A white weighted "shoelace" waits on the table, to hold the pages open without bending the books' bindings. Only the rustle of turning pages and a few whispers break the silence. I feel the magic of these books and allow myself to be carried into another time and place. Here are some of the volumes I looked at.

TIM GALLAGHER

Above, David Corson, director of Cornell's Olin, Uris, and Kroch libraries and curator of the History of Science Collection (which includes the Hill Collection) examines a plate from John Gould's 19th century Monograph of the Trochilidae, or Family of Humming-birds. *White gloves protect the precious pages.*

At right, you'll have to see first hand the iridescent colors of Gould's Heliodoxa jacula *(Green-crowned Brilliant) to truly appreciate them.*

Alexander Wilson, often called the "Father of American Ornithology," published *American Ornithology* in nine volumes from 1801 to 1825; the work was revised and reprinted for many years. Beautiful copies of the first and second printing of the first edition are included in the Hill Collection. The plates in the "Jameson edition" of *American Ornithology* and in *Illustrations of the American Ornithology of Wilson and Bonaparte* are illustrated by Captain Thomas Brown. Brown's work uses brilliant colors—note the blues and greens—and presents the birds against natural backgrounds that give a sense of depth and setting. Look for the tupelo tree with butterflies, eagles, and hawks, and the wonderfully realistic "Pinnated Grouse" [Greater Prairie Chicken].

One of Margaret Rogers's favorites in the collection is Mark Catesby's *Natural History of Carolina, Florida and the Bahamas Islands.* It's bound in glossy green leather, with gold tooling around the edges and green moiré silk inside. Catesby spent years in the American colonies collecting birds and recording notes in the field, instead of using preserved bird specimens and secondhand reports of the flora and fauna as did earlier artists in Europe. His work was first published in 1731; a fine copy of the third edition, printed in 1771, is in the collection. You'll find some surprises in it. The "Great Booby" [Northern Gannet] is shown with its body submerged and its head protruding from the water, surrounded by plants. The Canada Goose illustration shows only the bird's head—the artist's attempt to make it look larger than a small bird of another species on the same-sized plate. Catesby also shows the plants you'd probably find associated with the birds he illustrated. His work foreshadowed that of Audubon.

The matched set of the works of British ornithologist John Gould represents the most beautiful hand-colored bird illustrations of the 19th century, work that has not been surpassed. The five folio volumes of Gould's *Monograph of the Trochilidae, or Family of Humming-birds* were published from 1861 to 1867. Gould hired some of the best artists of his day to follow his designs and sketches. His wife Elizabeth transferred the sketches onto stone for the lithographic process; the plates were then hand-colored. Gould eventually published more than 3,000 hand-colored lithographs of birds, depicting species from around the world. You can sense the movement, and you'll marvel at the design—the curves of leaves follow the birds' curved bills. The plants, often orchids, are carefully detailed and identified. Look for *Heliodoxa jacula* [the Green-crowned Brilliant], a hummingbird whose gold-green iridescent throat contrasts with its almost black back.

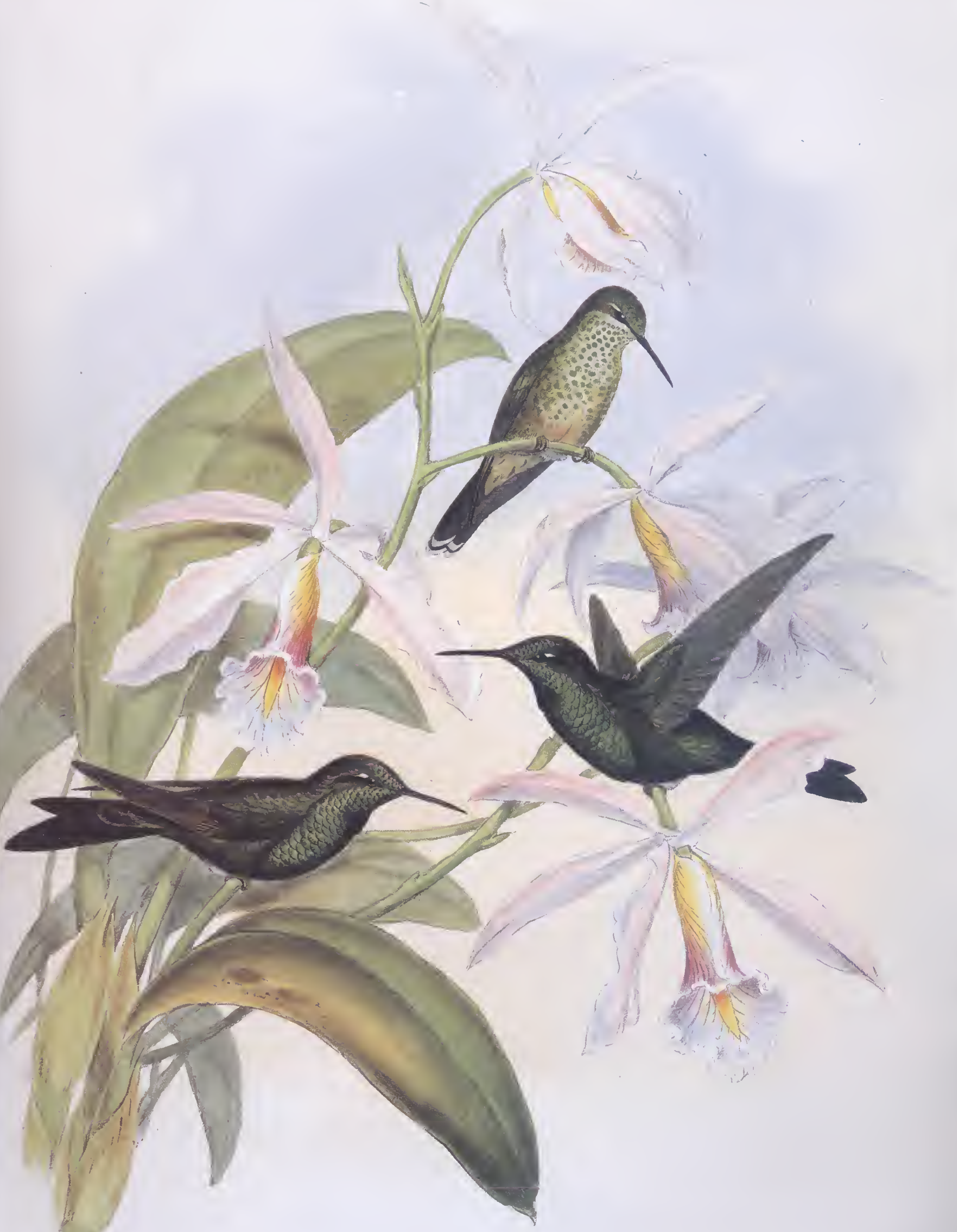
Reluctantly, I close the last book and place it back on the cart to be returned to the vault. Next time I visit I may find new treasures. The prerequisite for adding new books, Margaret tells me, is that they be useful to readers and researchers. Away from campus, if you have access to a computer and a modem, you can call up a list of Cornell's ornithology books and papers in the library's on-line catalog in the Research Libraries Information Network (RLIN). And if you need extra funding for your studies, grants are available. Above all, the librarians want people to know about the collection, and to use it.

So if you're interested in extending your birding experience to the printed page, plan to visit the birds at the Kroch Library. You'll be welcomed at this unique resource. ■

All illustrations appear courtesy of the Division of Rare and Manuscript Collections, Carl A. Kroch Library, Cornell University. The Kroch Library's History of Science Collections are open Monday through Friday from 9:00 A.M. to 5:00 P.M. year round and Saturday from 1:00 P.M. to 5:00 P.M. during the academic year.

For information on RLIN call (800) 537-7546.

Jane E. Hardy has been a bird watcher since 1950 when, as a Cornell University freshman, she took an ornithology course with the Lab's founder, Arthur A. Allen. She is a senior lecturer in Cornell's Department of Communications and enjoys watercolor painting.



Changing Course

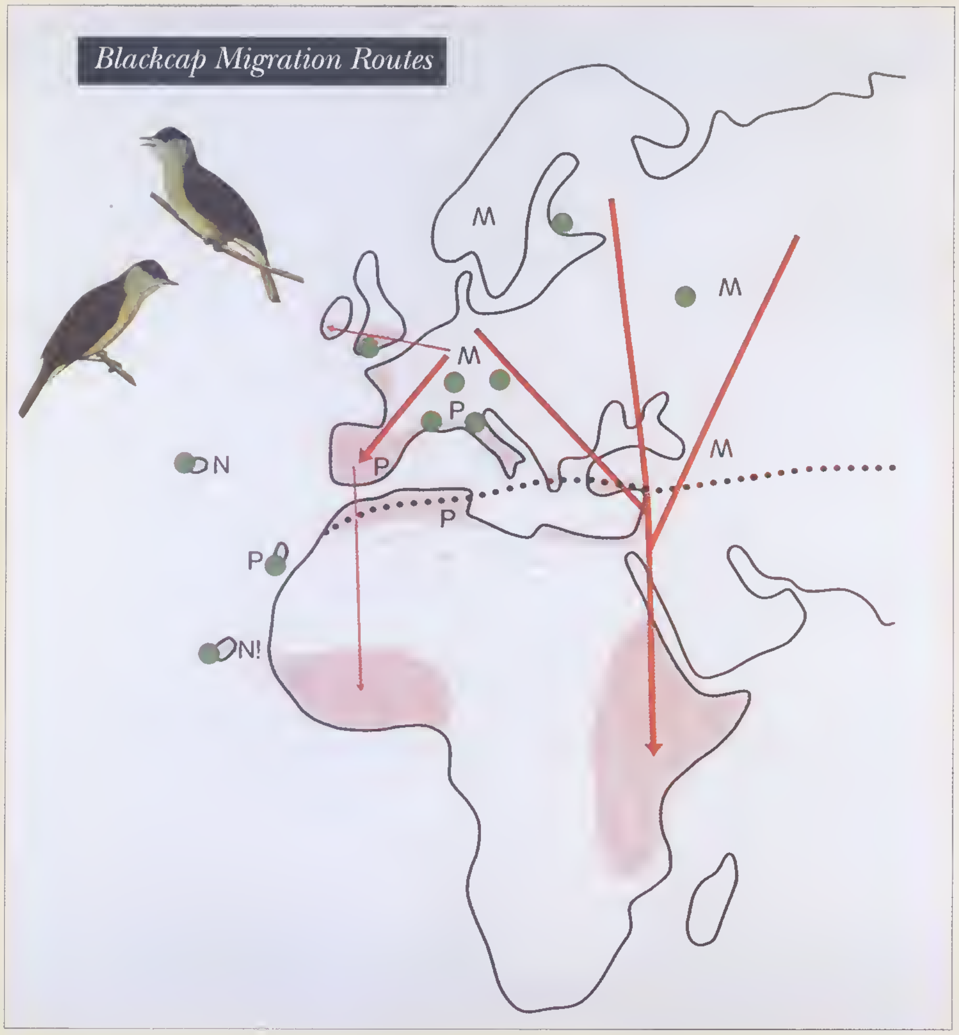
by Peter Berthold and Andreas Helbig

How long does it take a population of birds to alter their age-old migration behavior? Centuries? Millennia? In the Blackcaps' case, less than 30 years.

On December 14, 1961, some residents of the small town of Greystones, Ireland, found their cat dragging a bird, still alive, through their garden. It was a Blackcap, one of the 50 or so species of Old World warblers. But this was no ordinary Blackcap. The bird carried a band showing it had spent the summer on its breeding grounds in Austria. Instead of migrating south to the traditional Blackcap wintering grounds in Spain and Africa, however, this bird had flown northwest, to winter in the British Isles.

In the decades that followed, ornithologists found more and more Blackcaps wintering in the British Isles. Today, perhaps 10,000 individuals follow the new northwest route. In just 30 years, segments of some European Blackcap populations seem to have completely altered their migratory patterns. Moreover, the birds are continuing to extend their wintering areas northward as far as Scandinavia.

ILLUSTRATION BY STEVE CARVER



This map shows the locations of Blackcap populations and their migration routes. Some populations are exclusively migratory (M), some are partially migratory (P), and some are nonmigratory (N).

The birds breed in Europe and Africa (green dots); the dotted line marks the southern border of the continental breeding grounds.

The thick lines trace the main Blackcap migration routes—to winter quarters in Africa and the Mediterranean. The thin lines indicate two other migration routes, including the route some birds now take to wintering areas in Great Britain.

What triggered this novel migratory behavior—and how is it controlled? To answer these intriguing questions we must start with some basic information about bird migration.

As recently as the beginning of this century, ornithologists thought migratory behavior had evolved fairly recently, during the Ice Age. They theorized that birds were gradually driven south by the advancing ice; as the ice retreated, some birds moved north to fill up newly available habitat but, during the cold winters, would return south.

Today ornithologists generally agree that migration is an ancient behavior, possibly as old as birds themselves. Even *Hesperornis*, the toothed, flightless bird of the Cretaceous period, probably migrated by swimming. Furthermore, ornithologists believe that migratory behavior has evolved independently in different groups of birds. As a result, birds can be classified in three main groups on the basis of their migration patterns: migrants, partial migrants (populations in which some birds migrate and others winter within the breeding area), and residents (birds that don't migrate). Migratory behavior is most common in birds that live at higher latitudes.

If you asked an evolutionary biologist how fast avian migratory behavior can change as a result of evolution, a few decades ago the cautious answer might have been, "On the order of 1,000 years." More recently, the answer might have been, "About 100 years."

Our recent studies of Blackcaps give a strikingly different answer. Cross-breeding and selection experiments have demonstrated that many aspects of migratory behavior are encoded in the genes and can change very rapidly. Some of the behaviors that seem to be, to a high degree, genetically controlled include the urge to migrate, the onset of migration, the amount of migratory activity, seasonal patterns of migratory activity, orientation during migration, and the relative amounts of "migratoriness" and "sedentariness" in a partially migratory population. Thus these behaviors can change—evolve—in response to selective pressure.

One of our selective breeding experiments used birds from a partially migratory population (i.e., some birds in the population migrated; others didn't). We selected some migratory birds and paired them with other migrants. After only three generations, their offspring were almost exclusively migratory—even though both behaviors were present in the population as a whole.

The same was true for nonmigrants mated to nonmigrants—after only six generations, their offspring were almost exclusively nonmigratory. These results suggest that a population of birds can react to changing environmental conditions

PETER BERTHOLD (3)

by rapidly altering the proportions of migrants and nonmigrants in the population. Migratory behavior can evolve with lightning speed—compared to geological epochs.

We reasoned that the Central European Blackcaps' novel migratory behavior—wintering in the British Isles—could have developed rapidly as a result of very small evolutionary steps (a process called microevolution). Testing this fascinating possibility would be a true challenge for us.

The first step was to obtain experimental birds. We wanted to bring Blackcaps that were wintering on the British Isles to our research facility at the Max Planck Institute in southern Germany. The British government rigidly restricts the taking of experimental animals from wild populations, but once we explained that we would just be moving "our" continental birds back to their Central European breeding area a bit earlier than usual (and more safely than the birds' own migratory efforts would allow)—and thanks to the support of the British Trust for Ornithology and some of its amateur bird banders—we were successful. During the winters of 1988 through 1990 we transferred a total of 40 Blackcaps to the institute and conducted our experiments.

In late winter, we released pairs of Blackcaps into our outdoor aviaries and allowed them to reproduce. (They produced 41 offspring over two breeding seasons.) The young birds matured over the summer; then, in the fall, we tested the adult birds and their offspring to see in what direction they would prefer to migrate.

We measured migratory direction in orientation cages—aluminum funnels lined with typewriter correction paper. The top of each funnel is covered with clear glass, so the birds can see the stars by which they navigate. When the birds try to fly away, they scratch the paper. We take compass headings from the scratches to determine the direction of migration.

Blackcaps migrating from Central Europe to their winter quarters in the Mediterranean and Africa usually follow compass headings that fall in a wide angle around 140 degrees. If you extend this angle to the west by just 30 degrees, the flight path includes southern England. We reasoned that such a small deviation from the normal heading probably lies well within the normal variation in the birds' preprogrammed, genetic instructions for migration. If this logic were correct, then we would expect to find occasional records of Blackcaps wintering in the British Isles, not just in the last 30 years, but even earlier. In fact, old reports from British birders do include occasional winter Blackcap sightings.

What direction did our experimental birds take? The adult Blackcaps caught in winter in Britain oriented themselves in a west-northwesterly migratory direction, toward

The authors transported Blackcaps wintering in Great Britain back to Germany for selective breeding experiments. Above, a female Blackcap incubates her clutch in the aviary; at left, a young bird begs for a bite.

The experiments showed that in the fall, when it's time to migrate, captive females orient themselves toward Great Britain. So do their offspring—demonstrating that this migratory behavior is inherited, not learned.

Britain. We knew this orientation didn't necessarily have a genetic basis—the birds could be just heading toward wintering grounds they knew from previous visits. But, excitingly, these birds' offspring also tried to migrate in a west-northwesterly direction. Our control group of German-caught birds migrated in the old, traditional direction, to the southwest.

Migration behavior can evolve with lightning speed—compared to geological epochs

The most conservative conclusion we can draw from these results is that migratory direction is inherited and genetically controlled, and that widespread use of this migration route must have evolved within the past 30 years. Natural selection must have acted in favor of birds that were wintering some 1,500 kilometers farther north than "normal" members of the population. This is an extremely rapid evolutionary change in animal behavior—and the first such change in a vertebrate for which a genetic basis has been established. We are convinced, however, that similar cases will be discovered soon, now that we know how rapidly microevolutionary processes can proceed.

Why have the numbers of Blackcaps wintering in Britain increased so rapidly in recent times? Perhaps the vagrants enjoy some advantage nowadays that the British Isles didn't previously offer. Bird feeding has become increasingly popular in Great Britain in recent decades—so with plenty of food available at feeders everywhere, the Blackcaps' chances for overwinter survival have increased, especially during the second half of the winter when natural food sources such as berries are exhausted. Another possible advantage is that Britain has enjoyed milder winters recently, perhaps due to the greenhouse effect. Furthermore, competition with other birds is probably low compared to Mediterranean areas. All of these factors add up to favorable wintering conditions that support increasing numbers of Blackcaps.

Several other factors seem to be acting in concert with improved wintering conditions in the British Isles to accelerate the selection processes. First, the distance from Central Europe to the British Isles is about one-third shorter than the distance to the Blackcaps' Mediterranean winter quarters. All else being equal, birds that travel a shorter distance reduce the costs and risks associated with travel. Above all, birds that migrate a short distance are poised for an early return to their breeding grounds.

Second, past studies have shown that photoperiod (day length) has an effect on migratory behavior—and Blackcaps in the British Isles are exposed to different light conditions than birds wintering in the Mediterranean. In Great Britain the days grow shorter much sooner in autumn, winter days are shorter, and spring day lengths increase at a much faster rate than in the south. The short autumn days should cause fall migratory activity to stop relatively early (preventing the Blackcaps from migrating beyond the British Isles); the short winter days and rapid spring increase in day length should cause an early onset of migratory behavior and reproductive readiness in late winter or spring.

Third, if the British birds are ready to migrate early in spring, and if they travel a shorter distance, they will get to the breeding grounds first. They can occupy prime territories and begin breeding long before their Mediterranean-wintering counterparts. Birds with rich territories often have larger clutches; birds that begin breeding early may have more than one clutch during the breeding season. Thus the British birds may be producing more offspring.

Finally, British Blackcaps migrating back to Central Europe find the climate generally similar to—or even milder than—their winter home. Birds returning from the Mediterranean, on the other hand, find the climate relatively harsh. The birds wintering in Britain are acclimated to cold weather and may be better able to withstand cold snaps in spring.

We have already tested some of these potential advantages experimentally. When we exposed Blackcaps to light conditions that simulated migration to Britain, they started their spring migratory activity and gonadal development earlier than birds exposed to simulated Mediterranean light conditions. We estimate that they would have arrived on the breeding grounds about two-and-a-half weeks earlier than the Mediterranean birds. If British and Mediterranean birds get to the breeding grounds at different times, then assortative mating might occur: British males breeding only with British females, and Mediterranean males with Mediterranean females. This pattern of mating would greatly enhance the spread of the new migratory pattern.

We're also checking to see whether the Blackcaps that arrive earliest on the Central European breeding grounds really are the ones coming from the British Isles. A team of amateur birders is helping us to trap the earliest arrivals, which we keep in aviaries until the following autumn, when we test their orientation behavior in funnel cages. Preliminary results suggest that these birds do show northwesterly preferences.

In a recent article in *American Birds* magazine, J. P. Myers challenged our conclusion that migratory behavior has a genetic basis, charging that we ignored the possibility that pollution caused the change in Blackcap migration behavior. Myers argued, "It is entirely plausible that contamination in parts of the German environment, passed up the food chain to Blackcap mothers and [from the mothers] to their eggs and young, is altering migration." Myers considered the impacts of such toxicants to be "at least as likely [an explanation] as rapid evolutionary change."

We disagree. We are not aware of any case in which maternally transmitted contaminants have been shown to alter orientation behavior in animals. Neither do we know of any case in which exposure to a toxin caused a novel, advantageous behavior—a behavior that allowed an animal to fill a new ecological niche—nor does Myers suggest one.

We have tested the possibility that the new migration behavior is transmitted from parent to offspring, not genetically, but through the maternal contribution to the egg. We cross-bred Blackcaps caught in Britain with those from the German population. The 54 young from that cross-breeding took a migratory direction intermediate between that of German birds and British-wintering birds, as the genetic hypothesis would predict. If migration direction were a function of some factor passed on by the mother only, each of the offspring should have oriented in the same direction as its mother.

Finally, we have no evidence that European Blackcap populations have been seriously affected by a toxic substance. They all do very well and are either stable or increasing, including the German population.

The British Isles host not only a wintering population of Blackcaps, but also a separate, breeding population that winters in the Mediterranean. We are sometimes asked why Blackcaps breeding in the British Isles keep on migrating to the Mediterranean when the conditions in their breeding area are now so good that Blackcaps from the continent winter there in increasing numbers. Why don't Blackcaps just stay in Great Britain all year round?

Our experiments have shown that, in a partially migratory Blackcap population, the relative amounts of "migratoriness" and "sedentariness" can change fairly rapidly. In an exclusively migratory population such as the British breeding population, however, a behavioral change that causes migration to cease altogether would probably be slow to evolve. British Blackcaps may become resident in the future: other species such as European Robins and European Blackbirds are resident in the British Isles and more or less migratory on the continent. But we don't expect to detect the first microevolutionary steps of such a development in the near future.

In sum, the microevolution of migratory behavior seems to happen much faster than scientists previously believed. This finding may bring hope for the future: in the face of massive ecosystem changes such as global warming, some species may indeed be able to cope with the new conditions. ■

PETER BERTHOLD

A male Blackcap, above, sings out to stake a territory. In spring, males flying from Great Britain may arrive on the breeding grounds in Central Europe weeks before males traveling from traditional wintering spots along the Mediterranean. Early birds can grab prime territories, start breeding sooner, and perhaps raise more young than later arrivals.

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Andreas Helbig is the head of the Vogelwarte Hiddensee in northeastern Germany. His research focuses on bird orientation and population differentiation.

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The Unappreciated Pigeon

by Alexander F. Skutch

Photographs by Tim Gallagher

While waiting for the bus to take me home from the small town of San Isidro de El General in southern Costa Rica, I often pass the time watching feral pigeons. Undeterred by the noisy traffic and bustling people, the birds drink from rain puddles in the pavement, then fly up to surrounding buildings where they roost and nest. Seeing them, I'm reminded of the pigeon's lengthy association with people. Over the long millennia of human history, pigeons have been familiar to more people than any other family of birds.

The nearly 300 species in this ancient family, *Columbidae*, have spread over all the Earth's continents except Antarctica, and they colonized many remote islands so long ago that many have evolved into endemic species. In more recent times, humans helped speed up the distribution of pigeons by domesticating one species, the Rock Dove, and carrying it with them to all parts of the planet. They also transplanted several other pigeon species to various lands where they thrive, mostly in association with people. Though some members of the family are called pigeons (a name of French origin) while others, mainly the smaller kinds, are known as doves (an Anglo-Saxon word), there is no scientific foundation for this distinction. Pigeons and doves are very similar in structure and habits.

The pigeons I watched at the bus station are descendants of the wild Rock Dove, which ranges from central Asia, India, the Middle East, North Africa, and Southern Europe to Ireland, Scotland, and islands as far north as the Faeroes. It roosts and nests on sheltered ledges or crannies in cliffs and caves, and occasionally in cavities in trees, often in semi-darkness. After humans in the Mediterranean countries began to build massive temples and dwellings of masonry or wood, Rock Doves took up residence on the various nooks

A brief history of the much-maligned Rock Dove

and ledges of these structure. This habit facilitated their eventual domestication some 6,000 years ago in the Middle East.

As Europeans spread to the Americas, Australia, New Zealand, and other lands where this particular species was not present, they carried domestic pigeons with them to use as message carriers and food. Some of the birds strayed, managing to survive and reproduce without human care, eventually forming feral populations.

The pigeons in San Isidro prefer an urban life. In the many years I've been here, I have never seen a feral pigeon on or near our farm and nature preserve, which is only five or six air miles from the city, though seven species of native pigeons and doves have nested here. This seems to be the way of feral pigeons nearly everywhere; instead of spreading out over the countryside, they remain concentrated in cities, with a few on farms where they can find spilled grain for food and buildings for roosting and nesting. Although flocks of urban pigeons forage in nearby fields, they return to the sheltering town as night approaches.

Feral pigeons are neglected by serious bird watchers—but watching pigeons can be a rewarding activity for young and old

In the city, pigeons seek natural foods on whatever grass plots or exposed earth they can find, and frequent the parks where people feed them, mainly with bread, the most readily available food for these granivorous birds. Amid crowds, they recognize and approach people who have been kind to them, even when these individuals are not offering them any food. Such recognition is gratifying to the donors, especially city people who may have no other contacts with birds or other animals. Although many people complain about the unsanitary habits of pigeons, if banished from the cities, the birds would be missed by their friends.

Feral pigeons, regarded by many as feathered pariahs, are usually neglected by serious bird watchers. The birds have been studied most intensively by people hired to find ways to reduce troublesome urban pigeon populations. To learn how they nest and rear families, we must turn to studies of wild Rock Doves or domestic pigeons, or even to pigeons and doves of different species and genera. We can do this with confidence because the breeding habits of practically all members of the pigeon family are basically similar.

Pigeons are monogamous. Mates are strongly attached, resting close together, caressing and preening one another, with the male often regurgitating food for his consort. He guards her closely, driving away other males that approach her. After the pair has chosen a site for their nest, they build it together, exhibiting a division of labor widespread in this family. The female sits on the growing structure while her partner gathers nest material. Depending on the species, the male may break twigs from high in trees or gather straws and weed stems from the ground. If a piece breaks when he shakes it, he drops it and seeks another. With a contribution in his bill, he flies to the nest and stands beside the female, or on her back, while he lays the piece at her side. She arranges it, turning from side to side to distribute the pieces all around, while he goes off for more.

Unlike many passerine birds that collect a billful to take to the nest, the pigeon brings only one item at a time. Feral pigeons, reduced to gathering whatever they can find in the hearts of cities, may lack the wide choice of materials available in natural habitats. Their poorly attached nests may slip from flat or sloping ledges, or be blown away by a strong breeze.

Domestic and feral pigeons lay two white eggs, as do a majority of pigeon species. Though white eggs in shallow nests would appear to be readily noticed by predators, pigeons compensate for their eggs' lack of cryptic coloration by sitting on them nearly continuously after the first is laid. Unlike many songbirds, male and female pigeons share incubation, the male sitting through much of the daytime, the female at night, with only two changeovers in 24 hours.

As a boy, I kept common domestic pigeons, white Maltese and maroon Carneaux, and I learned that their eggs hatched in about two weeks. The incubation period of the wild Rock Dove on the Faeroe Islands and of some of its closest relatives is 16 to 18 days. A newly hatched pigeon is a soft, helpless creature, with pink or whitish skin, sparsely covered with tufts of short, hairlike, straw-colored or whitish down. Its eyes are tightly closed. The short, dusky bill becomes blacker toward the end, then abruptly whitish at the tip. A hard, whitish egg tooth at the tip of the upper mandible, and a similar but smaller one at the end of the lower mandible, help the chick to break out of its shell. The parents carry away the empty shells, usually half at a time, unless the two parts hang together.

As hatching time approaches, both parents undergo physical changes that enable them to feed their progeny. The walls of the crop, a saclike expansion of the esophagus, thicken until its weight is increased threefold. Special cells lining the crop swell with proteins and globules of fat, then slough off, producing crop milk. Composed of 13 to 19 percent protein, 7 to 13 percent fat, 1 or 2 percent mineral matter, vitamins A, B, and B_2, and 65 to 81 percent water, pigeon milk is highly nutritious, but lacks the sugar and other carbohydrates found in mammalian milk. During the nestlings' first few days, pigeon milk forms in the parents' crops only when they are empty, thereby ensuring that it doesn't mix with more solid food that might be impossible for the hatchlings to digest. As the young birds grow older, they receive more and more of the food swallowed by the parents mixed with the milk. Domestic pigeons provide milk for their young until they are about 16 days old.

When a parent pigeon comes to feed its brood, it has nothing visible in its bill or mouth. Until the nestlings' eyes open, they are often fed singly. After they can see, the members of a brood of two insert their bills in opposite corners of their father's or mother's mouth, and three heads bob up and down together as the parent pumps up food from its crop with strong muscular movements. Meals become more widely spaced and briefer but more copious as the nestlings grow older.

Some pigeon species neglect to clean their nests. The young birds' accumulated droppings cement the flimsy structure together and may prevent its being blown away by wind. Other pigeons, including Ruddy Quail-Doves and White-tipped Doves, keep their nests as clean as those of passerine birds. I have watched parents swallow droppings before delivering food, making me wonder how, or if, they avoid returning the nestlings' excrement to them.

If a person suddenly appears close to a pigeon's nest, the surprised parent often darts away with wildly flapping wings, knocking one or both of its eggs from the shallow bowl and giving the impression that it is a flighty, careless bird. Watching nests from blinds has increased my respect for pigeons' intelligence. Alert to sounds, they watch approaching humans or other animals and weigh the chance of being detected by a potential enemy before they decide whether to stay or flee. A Band-tailed Pigeon remained covering its egg while, on three occasions, a man seeking firewood or stray cattle passed beneath it. The noisy approach of horses or cows did not scare this or other pigeons from low nests. Often they valiantly defend their eggs or young. One evening at twilight, low thuds drew my attention to a White-tipped Dove protecting its nest in a tangle of climbing ferns by striking a snake with blows of a wing, which pigeons use instead of fists.

If such defensive measures fail, or often in their absence, a threatened parent may drop to the ground and flutter along as though crippled, to lure a hungry predator away. These distraction displays, far from being the frantic, convulsive behavior of a

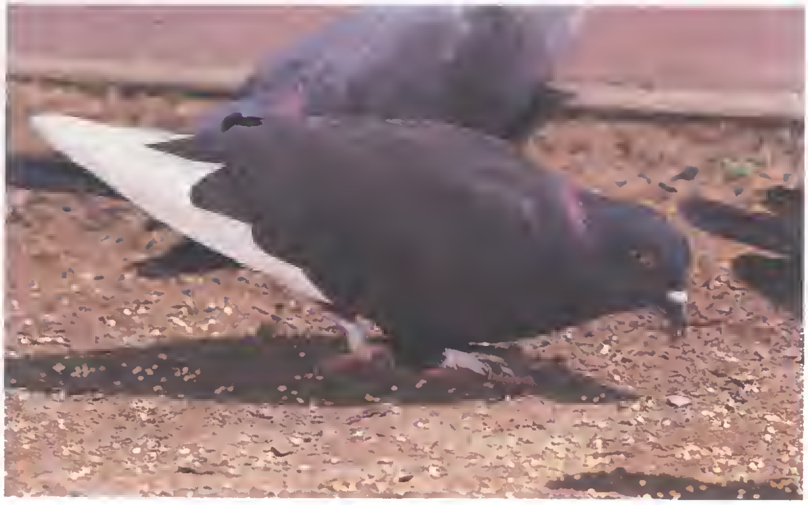
Above, these recently hatched pigeons are covered with hairlike down. Both parents feed their young on "pigeon milk," a fatty, whitish liquid secreted in the crop. At left, an older nestling has sprouted some flight feathers. Rock Doves may stay in the nest for 20 to 30 days before fledging.

City pigeons come to recognize people who feed them, above. The grain-eating birds forage for whatever natural foods they can find in city parks, plus bread and other snacks offered or discarded by humans.

These feral pigeons flaunt a variety of colors, including "pied," at right, and "blue-checkered" and "mealy," above right on facing page. In a city flock, birds of certain colors may tend to feed first; also, females may select a mate based on his flashy feathers.

parent torn between attachment to its young and self-preservation as earlier ornithologists too hastily concluded, are deliberate, often successful, attempts to save both its progeny and itself, both of which would be lost if the parent stuck stubbornly to its nest in the face of a predator. Widespread among birds with low nests, distraction displays require controlled movements and cool calculation to remain near enough to the enemy to encourage its pursuit, without permitting it to approach dangerously close. In the absence of a parent, older nestlings of domestic pigeons and related species try to defend themselves, rearing up, clacking their mandibles together, and lunging forward, sometimes striking an intruding hand.

Most young of small and medium-sized pigeons remain in their nests for 12 to 14 days. Rock Doves, however, stay 20 to 30 days, or occasionally more in a safe nest in a cave. For a number of nights after they leave the nests, siblings of several pigeon species have been found roosting in contact with each other, often with one or both parents close to them.



Feral pigeons are extremely diverse in coloration. The ones I was watching while waiting for the bus in San Isidro were so varied that no two looked alike. Derek Goodwin, author of *Pigeons and Doves of the World*, recognized eight main types of feral pigeons: blue (most like the ancestral Rock Dove), blue chequer, velvet, mealy, red chequer and red, grizzled, black, and pied. To this list we might add white. When you add to this all the breeds of domestic pigeons that have not become feral, it is evident that their variation under domestication has been enormous. Charles Darwin, who raised domestic pigeons as part of his preparation for writing *On the Origin of Species*, estimated the number of distinguishable kinds as over 150, some of which differed only slightly from others. Among the more strongly differentiated forms are pouters, able to inflate their chests enormously; carriers, best for homing; runts, facetiously named because they are so big; fantails, with two or three times the normal number of 12 tail feathers; tumblers, fantastic birds that turn somersaults in long sequences, on the ground or in the air; frill-backs, with upwardly curled feathers; nuns, small, elegant pigeons with white bodies and contrastingly colored heads; and many more. People of his time commonly believed that these different pigeon breeds must be derived from eight to a dozen wild species. But Darwin was convinced that all of them descended from Rock Doves. His studies of pigeons helped to support his theory of evolution.

What a contrast between the pigeons I see in town and the wild White-tipped Doves that we feed every morning on our lawn. Unlike the feral pigeons, which vary widely in appearance, these doves look very much alike throughout their vast range, from southern Texas to central Argentina. Yet, as in all organisms, they must occasionally be subject to mutations that alter their appearance and other characteristics, behavioral and structural. In the case of domestic pigeons, mutants have been selected by human breeders, who over the generations have produced the weird forms that they cherish. But what keeps White-tipped Doves and other wild birds so uniform? Among the possibilities are natural selection and sexual selection, or mate-choice.

Because it occurs in nature, sexual selection is generally considered to be a mode of natural selection, but it actually operates quite differently. Natural selection eliminates individuals whose capacity for self-preservation or reproduction falls below the norm of their species. A color variation that does not make an individual more conspicuous to predators might not be eliminated by natural selection. Sexual selection provides increased opportunities for reproduction with preferred individuals. If White-tipped Doves always chose mates that resemble their parents, it would keep their appearance uniform.

Nancy Burley conducted experiments in Texas with large numbers of feral pigeons that were released in an aviary and given the choice between differently colored potential mates. The males in her study often seemed more interested in the nest boxes available to them than in the colors of the females they attracted to their nests. Females were more selective, and the more experienced they were, the more attention they gave to the quality of their partners. In descending order, they preferred blue checker males over blue bars over ash reds. Both sexes could somehow assess the experience in breeding of their companions and selected super-experienced over semi-experienced over inexperienced individuals of the opposite sex. Males seven years of age or older, however, were less likely to be chosen as mates; their ability to rear families wanes with greater age. The varied plumage of feral pigeons everywhere is proof that selection of mates does not keep them uniform in appearance.

With soft voices, gentle ways, and exemplary family life, pigeons so endeared themselves to humans that in ancient times they became symbols of love, faithfulness, and spirituality. Feral pigeons are the birds most often seen by many urban people, who feed them and welcome the approach of those who recognize their benefactors. These interesting birds, so often neglected by people who prefer to watch wild birds, provide opportunities for absorbing studies by city-dwellers. The ease of recognizing individuals by their color patterns makes it largely unnecessary to trap and band them—a time-consuming task for students of bird behavior.

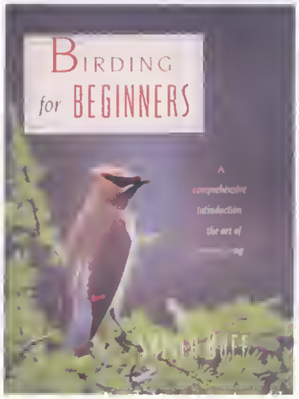
Diligent attention to feral pigeons could answer many questions about their lives. What foods do they prefer? What makes some individual pigeons dominant over others, and what advantages does high status give? Do pigeons prefer mates of certain colors or do they pair indiscriminately? Do they incubate with a schedule similar to that of wild pigeons? How long does incubation last? How long do the young stay in the nest, and for how many days after they leave do their parents feed them? Do they ever give food to nestlings other than their own? If carried a significant distance away, how do they find their way home? Some of these things may be well known for wild pigeons and those sheltered in aviaries, but it would be interesting to learn how the distractions of urban life affect the behavior of pigeons that live in cities. Watching feral pigeons, with definite questions in mind and careful note-taking, can be a richly rewarding activity for young and old. ■

Alexander F. Skutch is a world-renowned ornithologist who lives in Costa Rica. He has spent more than half a century studying and writing about birds.

Hundreds of young people across the United States are taking a new interest in the Rock Dove. Through the Cornell Lab of Ornithology's ***Project PigeonWatch*** *they are carefully observing the city pigeon, trying to answer questions about this ubiquitous bird's feeding and courtship behavior.*

Project PigeonWatch is an ideal activity for urban students, especially those in science-oriented after-school programs. For more information, write to Project PigeonWatch, Cornell Lab of Ornithology, 159 Sapsucker Woods Road, Ithaca, New York 14850, or call (607) 254-2440.

Critics' Corner



Birding for Beginners

by Sheila Buff

New York: Lyons & Burford, 1993.
Paper, 190 pages, $14.95.

My friend Esther wants to become a bird watcher, but she doesn't know where to start. She knows she should buy binoculars and a field guide—but which ones? She thinks she might like to go on a trip with the local bird club—but she feels intimidated by the thought that everyone else would be so much more experienced.

Luckily, Esther's birthday is coming up, because there's a new book out that's perfect for would-be birders: Sheila Buff's *Birding for Beginners*. From optics to identification, this book has everything Esther needs to get out there and wield her binoculars with confidence.

Buff begins at the very beginning—not with bird identification, as you might expect, but simply with how to see birds. Old hands know that birds are active at dawn and dusk, that bad weather during migration brings a fallout, and that summer is the slow season for bird watching—but a beginner might not.

Subsequent chapters cover such topics as navigating your way through a field guide, identification tips (including birding by ear), and interesting behaviors to watch for. Buff teaches you how to get the most out of a checklist, organize your own bird lists, shop for optics, and stay warm, dry, and comfortable in the field. Appendices list birding organizations and birding hot lines by state, and there's also information on magazines and books for your birding library.

Birding for Beginners fits in a niche that's currently not very full—as far as I can tell, Jack Connor's excellent book, *The Complete Birder*, is the only comparable title that's still in print. Connor's book is a step beyond this one, though—I'll give it to Esther for her next birthday.

Buff, the author of *The Birdfeeder's Handbook* and *The Birder's Sourcebook*, doesn't presume that you have any prior birding knowledge—but she doesn't talk down to you, either. The large-format paperback is a quick read. You could digest it at a sitting, but beginners will probably want to take it a chapter at a time.

When she's handing out advice, Buff is nothing if not frank. Writing about choosing a binocular, for example, she advises, "Skip the inevitable period of increasing dissatisfaction and frustration that comes with crummy binoculars, and go right for the good ones." Debating the merits of birding vests, she says, "They can make you look a little dorky . . . but you're a birder and don't care what people think."

This book does a particularly good job of promoting birding ethics. With each topic she introduces, Buff makes sure new birders know how to behave responsibly in the field, and she reprints the American Birding Association's Code of Ethics in one of the appendices.

I would have liked to see Buff take a stand in the chapter on binoculars. She tells you what to look for in a good binocular, and then—very fairly—leaves you to make your own decision. But hey, there are some makes and models that the birding community generally recognizes as being especially well suited to birding. Naming names would make life a lot easier for shy binocular purchasers.

I also think this book would have benefited from more and better illustrations. When Buff discusses sonograms, I want to *see* a sonogram. The antique illustrations by Alexander Wilson don't really fit the tone of the book—and they're probably not the best illustrations for the topics they accompany. Sticking the color photos in the middle of the book was surely a cost-saver, but this placement makes them seem just that—stuck in.

On the other hand, since the publisher *was* careful about costs, this book is reasonably priced, so you can give it to lots of your beginning-birder friends. And while you're at it, pass them the field trip sign-up sheet.

—*Cynthia Berger*

Chaucer's Checklist

by Michael Jeneid

Capitola, California: Pandion Press, 1993.
Paper, 130 pages, $14.92.

Was medieval poet Geoffrey Chaucer a birder? The answer, according to author Michael Jeneid, is probably yes. In his recently released book, *Chaucer's Checklist*, Jeneid presents the case that the great 14th-century poet had much more than an everyday knowledge of birds, and that this is reflected in the bird imagery sprinkled throughout Chaucer's poetry. More than 500 references to birds appear in his collective works.

Jeneid, who describes himself as a "private scholar," attempts to figure out exactly which species Chaucer is describing in some of his bird references. Some of the species are easy to identify—a "cukkow" is obviously a cuckoo; a "goshauk" is a goshawk—while others are completely baffling. What in the world is a "tydiff?" Described variously by literary critics as a titmouse or wren, the name tydiff appears twice in Chaucer, but nowhere else. Was it a poetic invention or an actual species? I won't ruin the surprise by telling you which species Jeneid came up with for the tydiff, but he does build a convincing case for his choice.

Michael Jeneid approaches his task like a sleuth, tracking obscure references through ancient texts, some dating back to Aristotle. He offers a list of 50 bird species found in Chaucer and a lengthy discussion of each species, often sprinkled with quotes from Chaucer, Shakespeare, and other notables. Jeneid's enthusiasm is contagious, which makes reading some of the more difficult passages from Chaucer more interesting.

Not everyone will like this book. Unfortunately, *Chaucer's Checklist* dangles in limbo somewhere between a scholarly and a popular work. It may well frustrate potential readers at both ends of the spectrum. Chaucerian scholars will want to see a more thorough discussion of the other authors—and there have been many—who have written about Chaucer's bird imagery, and also a better bibliography. Others will want the book to be more accessible, explaining in greater detail references that Jeneid takes for granted everyone will know.

Anyone who does not have a moderate grounding in Chaucer should read some of his major works, such as *The Canterbury Tales* and *The Parliament of Fowls* before reading *Chaucer's Checklist.* And keep your Chaucer text close at hand while going through Jeneid's book. You may find many references that you want to look up, to see them in context.

I must still applaud Jeneid's efforts and encourage him to write more books of this kind. (I understand that he plans similar works on Dante and Shakespeare.) He brings the keen eye of a birder to the study of great literature, and a refreshing sense of wonder.

— Tim Gallagher

To order Chaucer's Checklist, *send $14.92 (includes postage) to Pandion Press, P.O. Box 1635, Capitola, California 95010.*

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After reading it, I realized that what he had done was to create a compendium, or in truth, an encyclopedia, of thousands of bits of hard information about birds. There seemed to be almost no fact pertaining to birds—their lives, habits, behavior, dimensions, morphology, anatomy, etc., that was omitted.
From the introduction by Arnold Small

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STRANGERS IN THE NIGHT

by Pete Dunne

It was 10 minutes to midnight when we exited the New Jersey Turnpike and hit the old cobblestone lane leading to Kearny Marsh—home of the Pied-billed Grebe, a "must get" on a New Jersey big day.

"Great place to dump a body," one of my World Series of Birding teammates couldn't help but notice.

We wove a path around refuse, potholes, and discarded auto parts, turning onto the unmarked drive that goes past the trucking company and ends (as most lanes leading into the tidal wetlands of Hudson County do) at the base of a trash heap.

The police car, with its single uniformed occupant, was parked halfway down the lane. It was too much to hope that a Hudson County patrolman would not want to learn why four men dressed like characters out of *Lord of the Rings* would be driving a $40,000 sports sedan with Connecticut plates down a dead-end road at midnight, so we stopped as we drew abreast of him.

The patrolman's face was impassive but hardly indifferent and only a slightly raised right shoulder betrayed his unease. He didn't ask silly questions. He didn't want to see a driver's license or vehicle registration. He wanted an accounting. He said this with his silence.

"I know you're going to find this hard to accept," I offered, "but believe it or not, we're bird watching."

Once you've started joining Christmas Bird Counts, big days, and rare bird chases . . . once you've traded in your chickadee feeders for a Q-beam and gotten on a first-name basis with the night clerks at every all-night convenience store within 100 miles of home, you've stepped across the bounds of civilized social behavior. You've become a night thing, someone whom authorities regard with suspicion and everyday citizens with nervous hostility.

Not that you can really blame them. After all, you're up at hours that even Wee Willy Winky would eschew, and that's certainly suspicious. In addition, you're up at hours even Wee Willy Winky would eschew and you aren't watching Arsenio—that's even more suspicious. But what's worst, you're driving around with binoculars, and that's the most suspicious thing of all.

Back when I was director of the Cape May Bird Observatory, a local reporter once called to let me know that an unnamed informant claimed to have conclusive evidence that bird watching was an organized cover for Peeping Toms. "Would you like to make a statement?" he inquired. I said that it sounded like wishful thinking on someone's part, but to keep me posted.

On a per capita basis, there are probably no more (or fewer) social misfits among birders than brick layers—but keeping the hours of graveyard shift deejays does offer birders engaged in their night thing the opportunity to rub elbows with society's unsavory fringe. I can't begin to recall how many substance abusing drivers I've circumnavigated while driving to some pre-dawn rendezvous or how many walk-up weirdos I've had to humor at gas stations and highway rest stops. Fortunately, only once have I found myself in a situation that, upon reflection, was potentially life threatening. What saved me was the opportune arrival of another vehicle—and my wife Linda's police academy training.

We were far luckier than birder Wes Biggs, who was shot and wounded while working on Florida's Breeding Bird Atlas. Wes, out owling, was sitting in his car, making pertinent notations on an atlas form, when someone fired an assault rifle through his car window, hitting Wes in the arm. Authorities speculate that the owner of the weapon must have mistakenly concluded that Wes was making observations of interest to Treasury Department agents.

Most nocturnal encounters are merely frightening. Greg Hanisek's story is a case in point. He and two acquaintances were out at O-dark-thirty on a Sunday morning Christmas Bird Count. They were parked at the end of a desolate rural road with their backs to a collapsed bridge, when a car with its high beams on approached them. The vehicle came to a halt at the foot of the bridge, trapping Greg and his friends in a cone of light.

As the birders waited, each of them planning an escape route, a car door opened, and a shadowy figure walked toward them. Suddenly the man reached into his pocket, pulling out an object that he pointed directly at the agitated trio.

At this point, Greg and his friends noticed that the man's approach was anything but steady. In fact, he was weaving badly, barely able to stand. When he came close enough to disclose that the object in his hand was not the expected pistol but a billfold, the figure began imploring the surprised trio, "Pleash, jush take my m-mon-ey. . . . Doan hurt me."

The policeman didn't say anything after my disclosure. He didn't raise an eyebrow; didn't offer any clue to indicate how what I'd said had affected him. After 10 pensive seconds he offered a single, unblinking nod that was part affirmation and part admission that our excuse was one for the record books. Then he drove away.

I guess he believed us. Either that or he concluded that anyone brash enough to offer such an implausible accounting was probably capable of anything and, since he had no backup, would be better left alone. ■

ILLUSTRATION BY JEFF SIPPLE

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